**IN THE CLAIMS:**

1. (Currently Amended) A method for embedding information into a target element in which information is to be embedded, comprising ~~the steps of~~:

obtaining plural sets of data values of a plurality of elements, each set of data values being obtained along one respective direction extending through the target element;

determining plural calculated data and a strength of embedding information into the target element based on the plural ~~sets of~~ calculated data, wherein each of the plural calculated data is calculated using a respective set of the data values obtained in the obtaining ~~step~~ operation; and

embedding information into the target element based on the strength determined in the determining ~~step~~ operation.

2. (Currently Amended) The method for embedding information according to claim 1,

wherein the determining ~~step~~ operation includes

calculating ~~variations~~ variances for the plural ~~sets of~~ calculated data ~~values, wherein each variation is based on a respective set of data values obtained in the obtaining step~~, and

determining the strength of the embedding information based on the calculated ~~variations~~ variances.

3. (Currently Amended) The method for embedding information according to claim 2, wherein

the ~~step~~ operation of determining the strength of the embedding information based on the calculated ~~variations~~ variances includes

selecting a direction with a minimum ~~variation~~ variance from the calculated ~~variations~~variances, and

determining the strength of the embedding information based on the set of data values along the selected direction.

4. (Previously Presented) The method for embedding information according to claim 1, wherein the elements are elements of digital data.

5. (Previously Presented) The method for embedding information according to claim 4, wherein the digital data is image data and the element is a pixel.

6. (Previously Presented) The method for embedding information according to claim 1, wherein the data value is a luminance value.

7. (Currently Amended) An apparatus for embedding information into a target element in which information is to be embedded, comprising:

means for obtaining plural sets of data values of a plurality of elements, each set of data values being obtained along one respective direction extending through the target element;

means for determining plural calculated data and a strength of embedding information into the target element based on the plural ~~sets of~~ calculated data, wherein each of the plural calculated data is calculated using a respective set of the data values obtained in the obtaining ~~step~~ operation; and

means for embedding information into the target element based on the strength determined in the determining ~~step~~ operation.

8. (Currently Amended) An apparatus for embedding information according to claim 7, wherein

the means for determining includes

means for calculating ~~variations~~ variances for the plural ~~sets of~~ calculated data ~~values, wherein each variation is based on a respective set of data values obtained by the obtaining means~~, and

~~calculated variation determining~~ means for determining the strength of the embedding information based on the calculated ~~variations~~ variances.

9. (Currently Amended) An apparatus for embedding information according to claim 8, wherein

the means for calculating the strength of the embedding information based on the calculated ~~variation determining means~~ variances includes

~~selecting~~ means for selecting a direction with a minimum ~~variation~~ variance from the calculated ~~variations~~ variances, and

~~direction determining~~ means for determining the strength of the embedding information based on the set of data values along the selected direction.

10. (Previously Presented) An apparatus for embedding information according to claim 7, wherein the elements are elements of digital data.

11. (Previously Presented) An apparatus for embedding information according to claim 10, wherein the digital data is image data and the element is a pixel.

12. (Previously Presented) An apparatus for embedding information according to claim 7, wherein the data value is a luminance value.

13. (Currently Amended) A storage medium for storing therein an information embedding program for embedding information into a target element in which information is to be embedded, wherein said program causes a computer to execute ~~the steps of~~:

obtaining plural sets of data values of a plurality of elements, each set of data values being obtained along one respective direction extending through the target element;

determining plural calculated data and a strength of embedding information into the target element based on the plural ~~sets of~~ calculated data, wherein each of the plural calculated data is calculated using a respective set of the data values obtained in the obtaining ~~step~~ operation; and

embedding information into the target element based on the strength determined in the determining ~~step~~ operation.

14. (Currently Amended) A storage medium according to claim 13, wherein the determining ~~step~~ operation includes

calculating ~~variations~~ variances for the plural ~~sets of~~ calculated data ~~values, wherein each variation is based on a respective set of data values obtained in the obtaining step~~, and

determining the strength of the embedding information based on the calculated ~~variations~~ variances.

15. (Currently Amended) A storage medium according to claim 14, wherein the ~~step~~ operation of determining the strength of the embedding information based on the calculated ~~variations~~ variances includes

selecting a direction with a minimum ~~variation~~ variance from the calculated ~~variations~~ variances, and

determining the strength of the embedding information based on the set of data values along the selected direction.

16. (Previously Presented) A storage medium according to claim 13, wherein the elements are elements of digital data.

17. (Previously Presented) A storage medium according to claim 16, wherein the digital data is image data and the element is a pixel.

18. (Previously Presented) A storage medium according to claim 13, wherein the data value is a luminance value.

19. (New) The method for embedding information according to claim 2, wherein the operation of determining the strength of the embedding information based on the set of data values and the selected direction includes linear interpolation in the selected direction.

20. (New) An apparatus for embedding information according to claim 8, wherein the means for determining the strength of the embedding information based on the set of data values and the selected direction includes means for calculating linear interpolation in the selected direction.

21. (New) A storage medium according to claim 14, wherein the operation of determining the strength of the embedding information based on the set of data values and the selected direction includes linear interpolation in the selected direction.